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THE PERIODICAL CICADA IN 1911.

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United States Department of Agriculture,

BUREAU OF ENTOMOLOGY.

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(*Tibicen septendecim* L.)

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INTRODUCTION.

Two important broods of the periodical cicada (fig. 1) will appear this year. One of these belongs to the 17-year race and extends from New York southward into North Carolina, in general lying east of the Allegheny Mountains. The other is one of the largest brood of the southern, or 13-year, race and covers the lower half of the Mississippi Valley. Both of these broods have been very well studied in past years, and their distribution has been satisfactorily and in the main probably accurately determined. The approaching reappearance, however, of these broods of the cicada is already leading to inquiries, and this circular is issued to meet such inquiries, and also for the purpose of securing reports of occurrence to add to the present knowledge of the distribution of these broods.

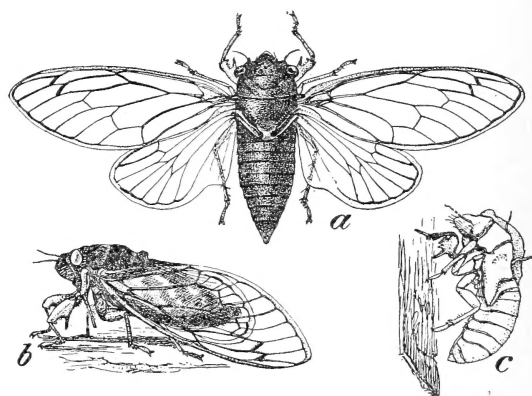


FIG. 1.—The periodical cicada (*Tibicen septendecim*): a, Adult; b, same, side view; c, shed pupal skin. (Author's illustration.)

17-YEAR BROOD II.

This brood, in the main, occupies territory immediately east of Brood I—a scattering brood appearing in 1910. Its exact range is shown on the accompanying map (fig. 2), the black dots indicating records by counties only of the appearance of the insect in former years at the regular 17-year intervals. In many cases we have numer-

ous records for individual counties, but these are represented on the map by a single dot. This is one of the best recorded broods, since its almost exclusively eastern range brings it into the immediate vicinity of the larger towns and more populated districts of the Atlantic seaboard. It has been reported in Connecticut regularly every 17 years since 1724 and in New Jersey since 1775, and almost equally long records of it in other States have been made. At its last appearance in 1894 it was carefully studied, to determine distribution, for New Jersey by

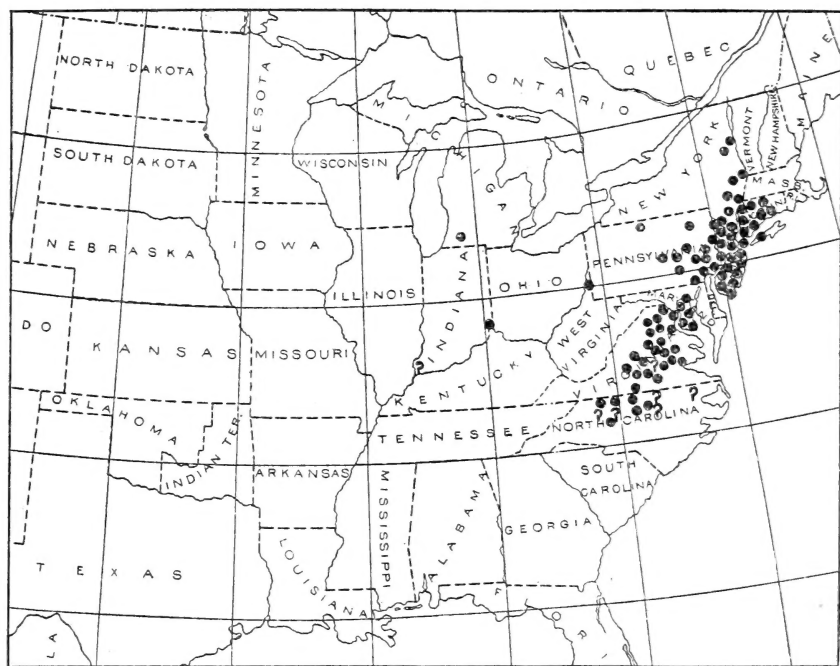


FIG. 2.—Map showing distribution of 17-year Brood II, 1911.

Dr. John B. Smith, for New York by Dr. J. A. Lintner, and for the other States covered by its range by this bureau, with the aid of State entomologists and local observers. Some of the southern records obtained in 1894 are doubtful, and this applies especially to localities in North Carolina, because of the appearance the same year of Brood XIX of the 13-year race, which, in North Carolina, may touch or overlap this 17-year brood. It is therefore very desirable that all observers in South Carolina report occurrences this year of the periodical cicada to clear up these doubtful records.

The distribution, as listed below, is based upon all of the available records:

Connecticut.—Fairfield, Hartford, Litchfield, Middlesex, New Haven.

District of Columbia.—Throughout.

Indiana.—Dearborn, Posey (?).

Maryland.—Anne Arundel, Calvert, Charles, Prince Georges, St. Marys.

Michigan.—Kalamazoo.

New Jersey.—Entire State.

New York.—Albany, Columbia, Dutchess, Greene, Orange, Putnam, Rensselaer, Rockland, Saratoga, Ulster, Washington, Westchester, and on Staten Island and Long Island.

North Carolina.—Bertie (?), Davie (?), Forsyth (?), Guilford, Orange, Rockingham, Rowan, Stokes, Surry, Wake (?), Warren (?), Yadkin (?).

Pennsylvania.—Berks, Bucks, Chester, Dauphin, Delaware, Lancaster, Lebanon, Lehigh, Montgomery, Northampton, Philadelphia, Pike, Potter, Schuylkill, Wyoming.

Virginia.—Albemarle, Alexandria, Amherst, Appomattox, Bedford, Buckingham, Campbell, Caroline, Charlotte, Culpeper, Fairfax, Fauquier, Fluvanna, Goochland, Hanover, Henrico, James City, Loudoun, Louisa, Lunenburg, Madison, Page, Pittsylvania, Powhatan, Prince Edward, Rappahannock, Spottsylvania, Stafford.

West Virginia.—Brooke (?).

13-YEAR BROOD XXIII.

As already indicated, this is one of the largest of the 13-year broods, dividing this honor with Brood XIX. Brood XXIII, appearing this

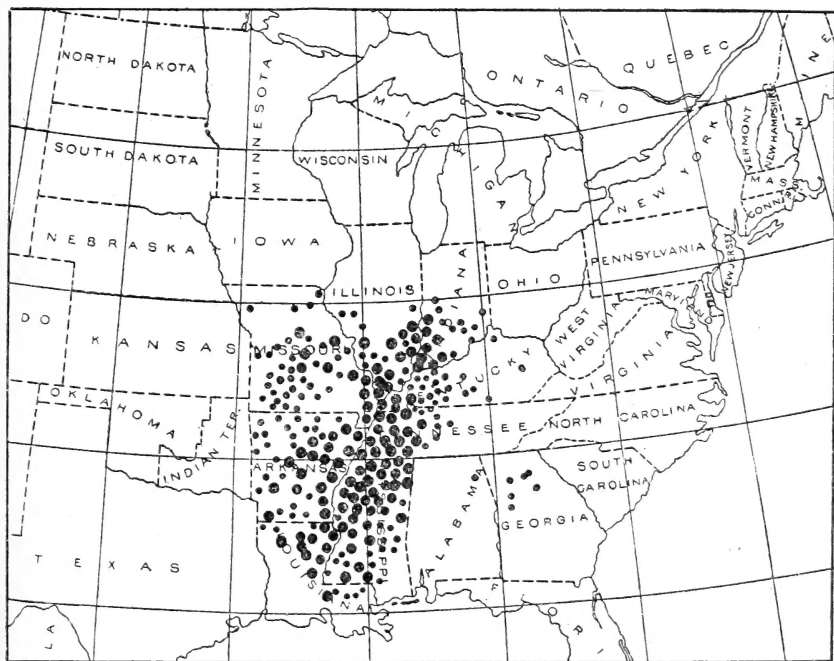


FIG. 3.—Map showing distribution of 13-year Brood XXIII, 1911.

year, occupies the Mississippi Valley from northern Missouri and southern Illinois to Louisiana, covering particularly the States bordering on the Mississippi River. Its distribution is indicated on the accompanying map (fig. 3) by black dots representing counties merely, but the abundance of the distribution of the insect is indicated

somewhat by the size of the dots, the small dots indicating scattering or occasional colonies and the large dots abundant and general occurrence of the insect.

This brood was given very careful study by the writer in 1898, and several thousand replies were received in response to circulars distributed throughout the region where this brood was supposed to occur, and also covering a much wider surrounding region. Local investigations were undertaken at this time by the official entomologists of the several States, notably Forbes (Illinois), Garman (Kentucky), and Stedman (Missouri). These State reports confirmed and supplemented the records obtained by this bureau, and are the basis of the records given below and of the map.

Nearly all the reports for 1908 indicated the occurrence of the insect in enormous numbers. Unfortunately, however, there was some doubt as to the correct reference of some of the localities in Illinois and Indiana, and perhaps northern Missouri, where there was an overlapping of this brood (XXIII of the 13-year race) with Brood VI of the 17-year race. In the case of the records, however, assigned to the 13-year Brood XXIII in the States mentioned, wherever there was a question as to the accuracy of the reference to the proper brood a query follows the county in the list of States and counties given below. It is very desirable, therefore, in obtaining records of this year to note particularly the occurrence of the insect in northern Missouri, southern Illinois, and Indiana, to clear up any doubt which may be attached to the records from these districts.

In the list of counties given below those followed by a star (*) indicate counties in which the cicada occurred in one or more dense swarms, in most instances many reports being received from the same county. In the unstarred counties the cicada was observed in few or scattering numbers, or at least was not abundant. The counties in italics duplicate old records. The counties lacking confirmation by the records of 1898 are inclosed in parentheses and included with the others.

The State and county records follow:

Alabama.—Etowah.

Arkansas.—*Arkansas*,* Ashley, Calhoun, Carroll, *Chicot*,* Clark,* *Columbia*, Craighead,* Crawford, Crittenden,* *Cross*,* *Desha*,* (Franklin), Fulton, Garland, Hot Spring, Howard, (Izard), (Jackson), *Jefferson*,* Lafayette,* Lee,* Lincoln, Logan, Lonoke,* *Marion*, *Mississippi*,* Monroe,* Newton, *Phillips*,* Pike, Poinsett,* *Prairie*,* *Pulaski*, Randolph, St. Francis,* *Saline*,* (Searcy), Sebastian, Sharp, Union, Van Buren, Washington, Woodruff.*

Georgia.—(Cobb), (Coweta), (Dekalb), (Gwinnett), (Meriwether), (Newton).¹

Illinois.—*Alexander*,* Crawford,* Edgar, Edwards,* Gallatin, Hardin,* *Jackson*,* Jasper,* Jefferson, Johnson, Lawrence,* *Macoupin*, *Madison*,* Marion,* *Perry*,* *Pike*, *Pulaski*,* *Randolph*, Richland, St. Clair, *Scott*, *Union*,* *Wabash*,* *Washington*, Wayne,* White, Williamson.*

¹ None of these localities, all of which were queried, was confirmed in 1898, and the record of this brood in Georgia is undoubtedly erroneous.

Indiana.—Bartholomew, Daviess,* Fayette, Floyd, Gibson,* Jackson, Jennings, Knox,* Montgomery, Owen, Posey,* Putnam, Ripley, Spencer, Sullivan,* Vanderbilt,* Vigo,* Warrick.*

Kentucky.—Ballard,* (Barren?), Butler, Caldwell, Calloway, Carlisle,* Christian, Clinton, Crittenden, Daviess, Fulton,* Grant, Graves,* Green, Hancock, Hardin, Hickman,* Hopkins, Livingston, Lyon, McCracken, McLean, Marshall, Muhlenberg, Ohio, Todd, Trigg,* Union, Webster, Wolfe.*

Louisiana.—Bienville,* (Bossier), Caldwell,* Claiborne, Concordia,* East Carroll,* East Feliciana, Franklin,* Madison,* Morehouse, Ouachita,* Pointe Coupee,* (Red River), Richland,* St. Helena, Tangipahoa, Tensas,* (Washington), West Carroll.*

Mississippi.—Adams, Alcorn,* Amite,* Attala,* Benton,* Bolivar,* Calhoun,* Carroll,* Claiborne, Coahoma,* Copiah,* De Soto,* Franklin, Grenada,* Hinds,* Holmes,* (Issaquena), Itawamba, (Jasper), Jefferson, Lafayette,* Lawrence, Leake, Lee,* Leflore,* Lincoln,* Lowndes, Madison,* Marion, Marshall,* Montgomery,* Neshoba, Newton, Oktibbeha,* Panola,* Pike,* Pontotoc,* Prentiss,* Quitman,* Rankin,* (Scott), Simpson, Smith, Tallahatchie,* Tate,* Tippah, (Tishomingo), Tunica,* Union,* Warren,* Washington,* Webster,* Yalobusha,* Yazoo.*

Missouri.—Audrain,* Barry, Benton, Boone, Callaway, Camden, Cape Girardeau,* Cedar, Christian, Clark (?), Clinton, Cole, Cooper, Dade, Dallas, Dent, Douglas, Gasconade, Greene, Hickory, Howell, Iron, Jefferson, Johnson, Knox, (Lawrence), Linn, Maries,* Miller, Morgan, New Madrid,* Osage,* Ozark, Pemiscot,* Perry,* Pettis, Phelps, Polk, Pulaski, Reynolds (?), St. Charles,* St. Clair, St. Francois, St. Louis, Scott,* Taney, Texas, Warren, Washington,* Webster.

Ohio.—Hamilton.

Tennessee.—Benton,* Carroll,* Chester,* Crockett, (Davidson), Decatur,* Dickson,* Dyer,* Fayette,* Gibson,* Hardeman,* Hardin,* Haywood, Henderson,* Henry,* Humphreys,* Lake,* Lauderdale,* Lewis, McNairy,* Madison,* (Maury), Montgomery, Obion,* Perry,* (Robertson), Rutherford, Shelby,* Stewart, Tipton,* Wayne,* Weakley,* Williamson.

GENERAL CONSIDERATIONS.

The periodical cicada is so well known that a general account of it in this place is unnecessary. When it appears in great numbers it naturally causes considerable alarm and arouses fears for the safety of shade trees and orchards. The actual damage, however, is usually slight, except in the case of newly planted orchards, and even here, by vigorous pruning back after the cicada has disappeared, much of the injury caused by the egg punctures (fig. 4) can be obviated.

Ordinary repellent substances, such as kerosene emulsion or carbolic-acid solutions, seem to have very little effect in preventing the oviposition of these insects. Some more recent experience, how-

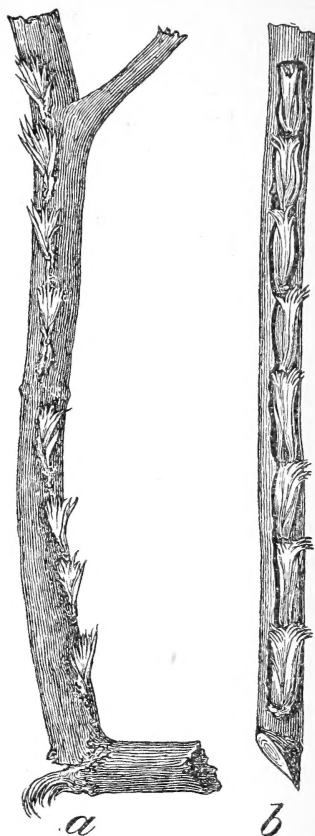


FIG. 4.—Egg punctures of the periodical cicada: a, Twig showing recent punctures, from front and side, and illustrating manner of breaking; b, twig showing older punctures, with retraction of bark, and more fully displaying the arrangement of fibers. Natural size. (After Riley.)

ever, indicates that trees thoroughly sprayed with Bordeaux mixture or lime wash are apt to be avoided by the cicada, especially if there are other trees or woods in the neighborhood on which they can oviposit. The most reliable means of protecting nurseries and young orchards is by collecting the insects in bags or umbrellas from the trees in early morning or late evening, when they are somewhat torpid. Such collections should be undertaken at the first appearance of the cicada and repeated each day.

Approved.

JAMES WILSON,

Secretary of Agriculture.

WASHINGTON, D. C., *January 3, 1911.*



